Natural Heritage Program Highlights
November 07 – April 08

Prepared for the NHP Partners Committee
April, 2008 Meeting

The past six months have been incredibly productive for the Montana Natural Heritage Program. In addition to major strides in data processing and other basic functions, a number of key innovations in how we do our work have taken us "where no Heritage Programs have gone before" with web data delivery, predictive habitat modeling, and database management. Key to this surge has been a substantial increase in funding for core functions, thanks to the Legislature, State Library, and our Partners. This report summarizes highlights of our activities and accomplishments for the period, as well as programmatic developments. We hope it gives you a sense of how much we have achieved, with your help and partnership, over the busy fall and winter months since we last met.

Program Management Highlights

Funding & Budget Planning

As of July 1, 2007, we began a new funding biennium with an additional $150,000 per year of State funding to support MTNHP core functions ($450,000 total/year). This increase has made a huge difference in helping us remove the data processing backlog and bring better products & services to our partners -- as you'll see reflected throughout this report.

Planning has already begun for the next Legislative budget cycle; so far, no funding cuts have been proposed and we plan to focus on maintaining the crucial gains made in the last Legislature. We'll also work to maintain and diversify funding from other key Partners who continue providing critical support for NHP data services and database development.

State Library Changes

The Natural Heritage Program, along with the Natural Resource Information System, is now part of the Montana State Digital Library (MSdL). Maintaining strong Digital Library and NRIS programs is crucial to the NHP, because they provide the IT and geospatial data infrastructure that underpin our data systems and web services. Jennie Stapp has taken over as Director of the Digital Library following Jim Hill's retirement in December, and has been doing a great job of getting to know the Heritage Program, our work and our diverse partnerships. In addition, longtime NRIS staffer Gerry Daumiller has been promoted to NRIS Projects Manager, where he will be working closely with NHP staff to develop the State GIS Portal and related information services.

NHP Staffing Update

Since last fall, the NHP has welcomed two new Wetland Digitizing Technicians, Meghan Burns and Sloan Gray. We've also benefited since last summer from the help of part-time accountant Leslie Berg. Recently, Ecologist Greg Kudray announced his resignation at the end of April to pursue his dreams in Hawaii. We're now recruiting for an Ecologist/Project Manager focusing on wetlands, to help carry on our many wetland projects. In the meanwhile, two young ecologists will be joining us for internships this summer, which will strongly reinforce our capacity for the field season.

User Survey Coming

It's time for another user survey, so that we can stay well-informed about the needs, satisfaction level and concerns or suggestions of our users. It will be an on-line survey with notices distributed by email to identified partners and users. The survey will also be accessible from our website for anyone else who'd like to take it. Look for it in May and let us know what you think!

Information Services Highlights – Allan Cox

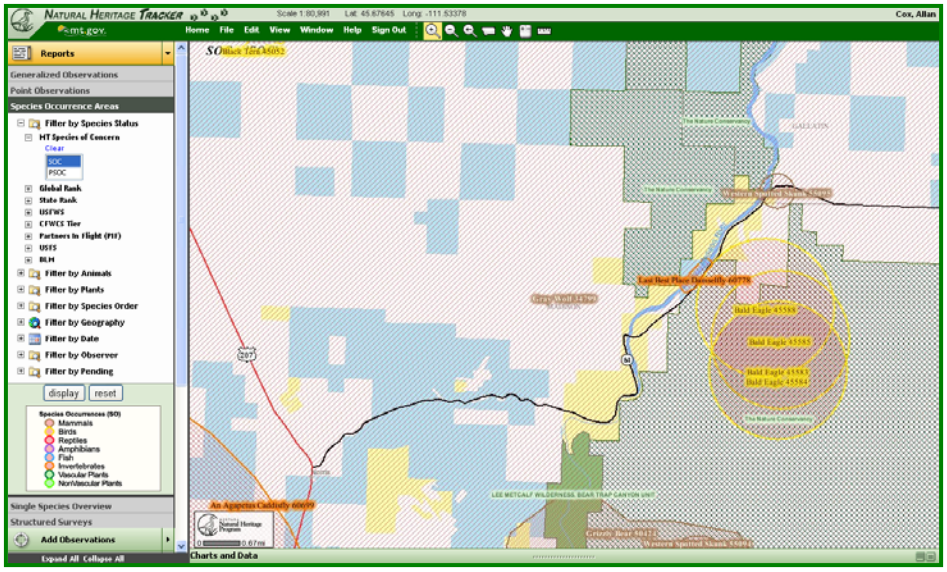
Revised Montana Field Guides Released

A major revision of the on-line Montana Field Guide was released in December 2007. This resource is a collaborative effort between the Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. The revised Animal Field Guide provides information on identification, habitat, ecology, reproduction, range, and distribution of Montana's animals. The new Plant Field Guide offers information on plant species of concern, including references and photographs. Recently added features include a hierarchal approach to finding species or groups of interest, thumbnail photos, animal range maps, and additional links to more information. In addition, MTNHP can now control the photographs and content to be displayed without relying on web programmers.

New Version of TRACKER

The Natural Heritage TRACKER application is linked to the Field Guides, and provides observation data on Montana's animals and plants. Users can generate maps and reports showing observations, as well as entering and viewing their own animal observations. A major new version of TRACKER is slated for release this spring. A beta test version can be accessed at http://mtnhp.org/Tracker2/. New information and features include:

- New report and query functions that are more task-oriented, to keep the interface from getting overly complicated.
- Observation data for both animals and plants (Species of Concern) are now included.
- Plant and Animal Species Occurrence (SO) Areas are now included. These are our traditional element occurrences (EOs) but with a new name! Also included is detailed descriptive information associated with the Species Occurrence areas as well as the rules used to determine the SO area depicted.
- Range maps for selected animal species.
- Structured survey data for most vertebrates and selected invertebrates.
- Ability to export maps and data reports to JPG image format and Adobe PDF files.
- Ability to bookmark favorite views for easy return.
- New report filters: by Species Order, by Geography including Township, Range, and Section.
- New template colors to match the MT.gov site.
- Slight restructuring of the top menu (File, View, etc.).



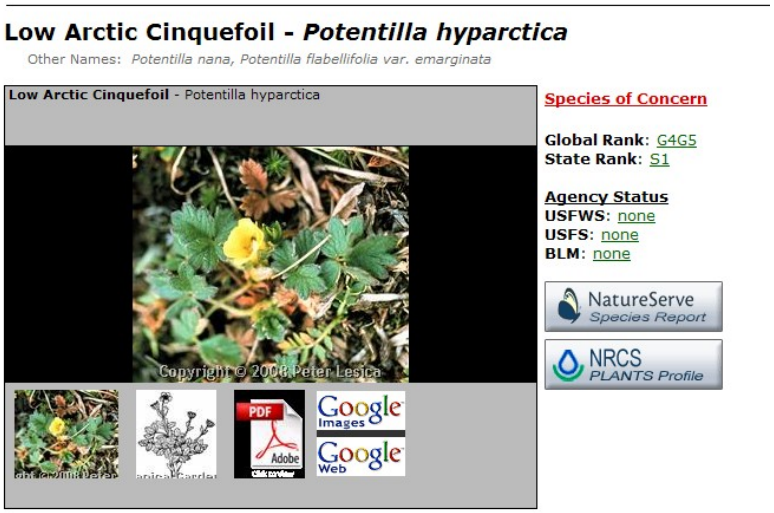
USER GROUP FORMATION

As a follow-up to the fall Partner's meeting, we established an MTNHP User Group to provide feedback and advice on web and other information services and products. Since its creation, the User Group has responded to an on-line survey that provided valuable feedback on the newly revised Montana Field Guide. In addition, individuals in the group were contacted for input on our efforts to enhance the TRACKER application to provide meaningful information to county planners, conservation groups, and others who need our information, but who aren't provided detailed partner level access. This design process is still in progress. We are looking at developing a mid-tier, password protected application that would provide animal and plant lists as well as predicted occurrences at various scales of geography, including 5th and 6th code watersheds and at the public land survey section level. To obtain access, potential users would need to complete an on-line certification process.

Botany Program Update - Scott Mincemoyer

Montana Field Guide Development

The new format, programming and inclusion of "all" vascular plants in the Montana Field Guide is a major step forward in the delivery of information on Montana's vascular flora. Improved programming also allows for much easier addition of web content by staff biologists.
Major content enhancements include:



Photos: Added photos for >400 different plants in the last 6 months. The Field Guide now contains photos for >700 plants (>1/4 of the state's flora) and should have photos for ½ of the state's flora by the end of the year.

Synonyms: Added >500 plant synonyms. The Field Guide is now searchable by any scientific name, common name or synonym. This is an important function that allows users to find information on our site and identify names that may be used in other publications that differ from the name we use or that is familiar to the user. This is a common problem that is unfortunately encountered frequently by users of plant data.

Other Content: Information such as State Rank Reasons, Habitat, Ecological Data, etc are being added or updated continuously. However, this information is still the slowest to get added or revised due to the complexity of summarizing it into a concise web write-up, as well as the lack of information available for some species. Additional focus will be placed on adding/revising State Rank Reasons and Habitat information over the next year.

Globally Rare Plant Ranking Update

A grant from the National Fish and Wildlife Foundation is allowing us to collect data and review state and global conservation ranks for several dozen globally rare vascular plants. For many of these species, MTNHP either did not have any data or was not actively tracking the species, resulting in outdated conservation ranks and/or insufficient data to accurately assign a rank. To date, data has been collected and largely entered into the botany database for ~3 dozen species from the state's 2 major herbaria. These globally rare species comprise approximately half of the 250 new plant occurrences that have been mapped in the last few months. Field data collection for many of these species will take place this field

season. Additionally, new funds have allowed us to more actively participate in global rank reviews conducted by NatureServe, including six reviews this past month.

Threat Ranks for Plant Species of Concern

Categorizing threats to plant SOC is an integral part of assigning heritage conservation status ranks, though one often fraught with difficulty and ambiguity. To help with this task, a committee of interagency botanists and biologists was formed to gather data on specific threats to plant populations, develop methodology and to assign threat rankings to each SOC. The results of these endeavors are that plant SOC are assigned to one of four threat categories which identify the degree to which a species' viability in the state is threatened by anthropogenic activities. The Botany Program has actively participated in this effort and is maintaining all the collected threats data. We will soon be incorporating these rankings in status reviews and will post the ranks on the Field Guide and in updated SOC Reports.

Non-vascular SOC Update

Lichens?? Why be concerned about lichens? Well…Lichens can be important indicators of environmental quality and some species are very sensitive to changes in air quality and as a result have been used in monitoring studies of air quality changes and trends.

A committee of lichenologists has been formed to help update the current lichen SOC list which was originally developed ~10 years ago and has basically remained static over those 10 years. The current list is not supported by observation data, contains many species that are cryptic, even to lichenologists and many that are state-rare but globally-common. The committee will help review the list, provide observation data and help with outreach with other lichenologists and knowledgeable biologists and managers on a regular basis.

The current SOC list has >100 lichens with almost no supporting data. Not very useful or meaningful to biologists or managers! The lichenologist committee proposed focusing the SOC list on those species which are globally rare and easily recognizable (for lichens that is!). An additional criterion would be to include only those species in "vulnerable" habitats. Resulting list would include 1-2 dozen species.

The current Bryophyte (mosses & liverworts) SOC list was also implemented ~10 years ago and contains over 100 species and has very little data to support the list. A separate committee of bryologists and knowledgeable biologists will be formed to provide similar guidance and input on the bryophyte list revision process.

The revised non-vascular SOC lists will provide data and content useful for informing land management decisions as well as focusing limited resources on those species of greatest conservation concern, attributes that are lacking in the current lists.

Botany Data Management

A new geodatabase was created in October to manage plant observation and occurrence data. It has greatly increased efficiency in data entry, management and improved tracking of observation data compared with Biotics. Data is managed in Arc 9 and Microsoft Access and will be converted to a SQL database to further improve functionality and capabilities in the near future.

We are currently entering all past vascular plant SOC observation data that either were not in Biotics or were only in Biotics as part of a summarized "EO Data" field which created problems entering, managing and retrieving observation data. Currently there are >5,700 observations supporting >5,400 mapped occurrences. This in an increase of >250 mapped occurrences and 1,400 observations since October. By the end of the year, the database should contain approximately 6,000 mapped occurrences of SOCs and other tracked species and 7,500 observations linked to and supporting those mapped occurrences.

Botrychium (Moonworts) Data

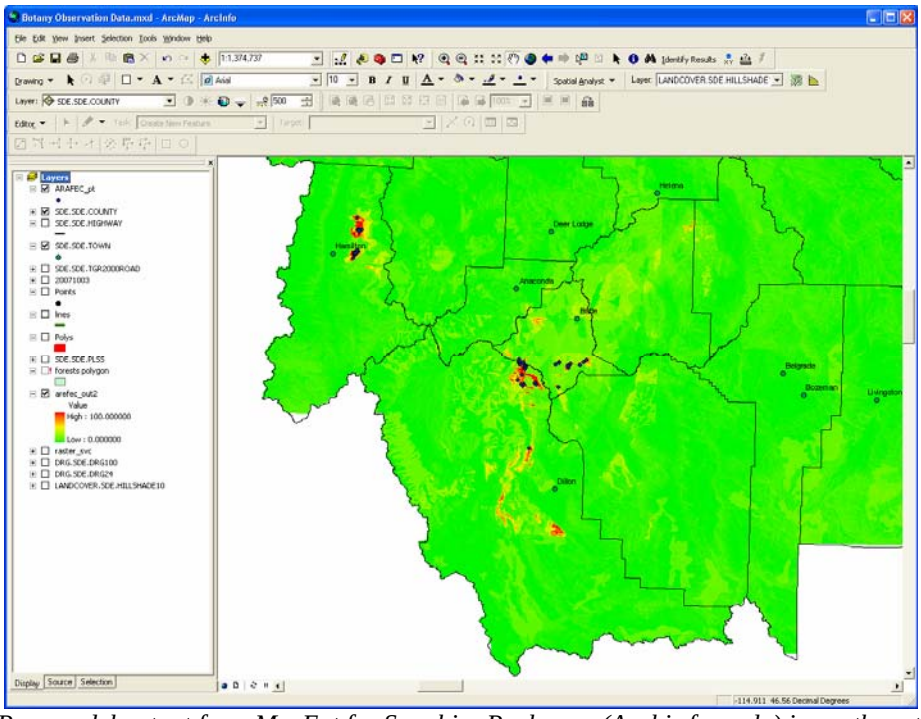
This important group of ferns (15 out of 23 species in MT are SOC) contains several traits that add difficulty to tracking occurrences and observations of individual species, thus making conservation status determinations difficult.

Moonworts are morphologically very similar and small, thus difficult to identify. Molecular genetic work is sometimes needed for positive identifications. Moonworts commonly grow in "communities" containing more than one species at the same site. One site in MT has 9 different species reported. This increases the difficulty of identifying which species are at a site and what their abundances are.

Additionally, several new species have been named in the last few years. In some cases, a newly described species is from a known *Botrychium* site and was previously identified as a different species, meaning determining population trends is difficult to impossible for an individual species. To better address this complexity, we have changed our tracking approach. *Botrychium* locations are not specifically mapped for each individual species, but are now mapped as *Botrychium* sites with individual species observations reported for that site linked to the spatial feature. Additionally, we are now tracking all *Botrychiums* whether they are SOC or not (See the example from the geodatabase above), excluding a couple common, morphologically distinct species. This methodology eliminates several problems that prevent or delay data from getting entered, streamlines reporting of *Botrychium* observation data and site locations and will make it easier to assess the conservation importance of sites containing *Botrychiums*.

Species Predicted Habitat Models

Methodology for predicting habitats of plant species is in place and a couple dozen species have been modeled to date. We plan to batch-process all BLM Sensitive species soon, though we may wait for delivery of several new/updated environmental/biophysical input layers (Regap Veg and REAP) before proceeding. Predicted habitat maps should be available and posted on the Field Guide for all BLM Sensitive species by end of the year, and possibly for all vascular plant Species of Concern.



Raw model output from MaxEnt for Sapphire Rockcress (Arabis fecunda) in southwest MT

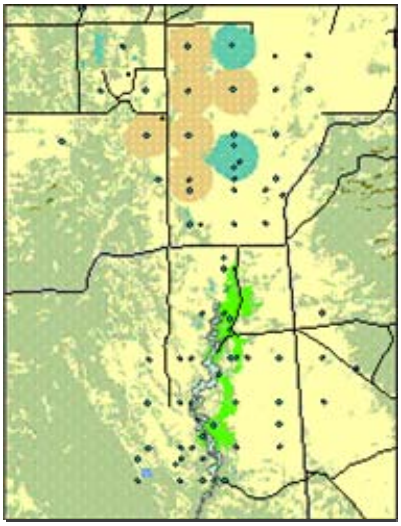
ECOLOGY PROGRAM UPDATE – Linda Vance

Wetland mapping, monitoring and assessment

We significantly expanded the mapping capabilities of our Wetland & Riparian Mapping Center this past winter with the addition of two new wetland digitizing technicians, Meghan Burns and Sloan Gray. With three full-time digitizers, we exceeded our goals for wetland mapping in southwestern Montana and met deadlines for the Clark's Fork of the Yellowstone, Bighorn River and Musselshell subbasins. We're currently mapping in areas of the Flathead, Seeley-Swan, Big Hole, and Upper Clark Fork, and will begin in the Powder and Tongue River basins soon. In the past month, the Rocky Boys tribe and the Montana DEQ Mines program joined as partners in supporting the statewide wetland/riparian mapping effort.

We're also continuing to develop and implement wetland and watershed assessment tools, including participation in the 2011 REMAP survey of the nation's wetlands and the development of a national Ecological Integrity Assessment methodology for compensatory mitigation performance. We completed watershed health assessments for the Clark's Fork Yellowstone and portions of the Bighorn River subbasins for the BLM, and will be doing a similar assessment in the Centennial Valley this summer.

We've also been conducting an analysis of landscape level factors that correlate with wetland condition. Although there are very few direct correlations between landscape factors and wetland condition scores, we did discover that the absence of water right points of use -- diversions, wells, stock ponds, etc. -- within 1000 meters of a wetland is a strong predictor of ecological integrity. Of the 175 wetlands in our study that fell into that category, 78% had been ranked "excellent" in an onsite condition assessment.



GIS map of Sage Creek wetlands in Carbon County showing land cover and water rights points of use.

Bitterroot Valley Wetland Change

In a comparison of new NWI wetland mapping to the early 1980's original NWI, Greg Kudray and Tom Schemm found relatively small losses of natural wetlands, except for a surprising 80% decrease in beaver pond numbers and acreage. Beavers are a keystone ecological species and create wetlands that would otherwise be rare in mountainous areas. The other important finding was a large increase in newly created recreational ponds (921 new ponds). These changes indicate an important shift in aquatic wetland habitats and functions. Similar studies are planned in the Flathead and Gallatin Valleys. The Bitterroot Valley wetland change report is available on our website.

Isolated wetlands

Linda Vance recently conducted an analysis of mapped wetlands in Montana to determine how many of them could be classified as "geographically isolated" within the definitions laid down by the Supreme Court in the past several years. Unless they can be shown to have a "significant nexus" to some navigable river, as measured in hydrologic, physical or biological terms, isolated wetlands may fall outside the protections of the Clean Water Act. Our analysis revealed that of some 173,000 mapped wetlands in Montana, 78,000 -- 45% of all wetlands -- have no visible surface water connection to any other waterbody. When only palustrine wetlands are considered, 48% of wetlands across the statewide mapped

Seasonally flooded prairie pothole in Sheridan County.

areas are isolated. We are currently expanding that study to examine the extent of ephemeral and intermittent streams that may also lie outside the scope of the Clean Water Act.

Wetland ecological systems
ReGAP maps use ecological systems as mapping units, a classification that may be unfamiliar to many people. In Montana, there are almost 30 wetland and riparian ecological systems. Although NatureServe has published descriptions of these systems, many of the descriptions are too general to provide much guidance to managers or the public. With the help of a graduate student assistant, we have been rewriting and expanding these descriptions for Montana. Almost half are completed, and should be posted on our website for review by mid-May. This summer, we will be developing a reference network of wetland ecological systems to help managers identify and understand the characteristics of each system and how they change in response to disturbance. We will have two recent ecology graduates assisting in that work.

ReGAP support
We continue to assist USGS in developing GAP land cover maps by reviewing draft maps and selecting ground truth areas. Ground truth sites where vegetation type has been documented are important for the accurate mapping of land cover types. Mapping has been completed for Zones 20 and 29/30, and is available for download at http://www.gap.uidaho.edu/Northwest/data.htm. To assist in future mapping, we have received the statewide vegetation plot and photo database used for LANDFIRE and GAP mapping; we will continue to develop this important database and will make it available on our website.

Montana Land Cover / Land Use mapping
During December and January, Linda Vance interviewed state, federal and local agency resource staff, private consultants and academics to identify their needs for a Montana Land Cover/Land Use map. Most users indicated a need for a dynamic map, accessible through both a web interface and a raster service, that would allow them to explore and display land cover data at multiple levels. They also expressed strong support for interpretive information that described the mapping units (ecological systems) and provided information on habitat values and management. Many users also wanted some way to upload corrections and refinements. We presented the results of this assessment to the State GIO and the State Librarian, and used the information as the basis of a request for funding from the Montana Land Information Council. We expect to hear about the results of that request in May.

Aquatic Ecology

Between October and January, we processed 66 macroinvertebrate samples collected last summer from USFS (20), BLM (10), USDOI-NPS (26) and TNC (10) lands. This resulted in identification of almost 20,000 macroinvertebrates and the addition of 4,000 new records to the stream classification database. Most of these sites had never been sampled for macroinvertebrates before, and doubled our data holdings for the Perennial Freshwater Spring ecological system, especially in the arid Bighorn Canyon Area. We also added records for 100 new sites to the stream classification database and 287 mussel surveys points. We still have another 110 sites and 6,000 invertebrate records to append to the database. This database will help us complete a stream classification analysis for watersheds on the west side of the Divide.

In the meanwhile, we're working on making our entire aquatic ecosystems database, the largest of its kind in the state with some 1400 stream sites and 26,000 species records, accessible through Tracker in the next month or so. For Species of Concern, we've added some 300 invertebrate Observation records to POD for access via Tracker. We have also added more aquatic species information to the Field Guide, with new accounts for 33 Species of Concern as well as 100 photos for invertebrate species.

Aquatic Ecologist Dave Stagliano gave several presentations on climate change and its potential to seriously impact Montana's aquatic ecosystems. This coming summer he will be helping the Lolo National Forest identify Riparian Conservation Areas and potentially Research Natural Areas for the highly diverse and unique faunal areas of the Northern Rocky Mountain Refugium (NRMR) Area, based on our 2006 & 2007 aquatic species inventories. With these inventories and data compilation, we added 6 "new to MT" aquatic species, all of which will be identified as Species of Concern in the next report.

Sagebrush: Fires, Birds & Mapping

A major goal of this project was to understand how Wyoming big sagebrush responds after prescribed burning and wildfire. Ecologists Greg Kudray and Steve Cooper found that sagebrush is virtually eliminated after both kinds of burning and is extremely slow to return to pre-fire condition. Even our oldest burn (67 years) was only 8% recovered and many sites had virtually no sagebrush regeneration. Consistent with other research findings, full sagebrush recovery appears to take well over 100 years. Burning also caused an increase of annual and perennial grass cover, with virtually all of the annual increase due to Japanese brome, a non-native weed. There was no change after burning in overall forb cover or the numbers of forbs of the Cichorieae tribe of the Aster family, which are important for successful Greater Sage-grouse brood rearing. Plant species richness also significantly declined in burned compared to unburned control plots.

Another goal of this project was to relate breeding bird presence, emphasizing Montana Species of Concern, to site and landscape factors. Over 100 bird points were surveyed in Southeastern Montana in 2006. The bird Species of Concern that were analyzed responded variably to site and landscape factors; some species were strongly associated with vegetation at the site, while landscape factors, like GAP land cover patterns, were more important for other species. For instance, Chestnut-collared Longspurs were associated with low sage cover and the presence of water in the surrounding landscape. Managers concerned with these declining grassland bird species can use this information to develop species-appropriate vegetation management using landscape characteristics and current GAP land cover maps.

We have also been working on sagebrush projects through our Spatial Analysis Lab in Missoula. Marcus Reddish, a graduate student and Image Analyst has been analyzing the relative merits of Landsat, SPOT, Quickbird and Color Infrared Imagery for mapping sage habitat in the Bannack Pass area near Dillon (funded by the BLM). Marcus presented this work at the recent Intermountain GIS Conference. In addition, Will Gustafson and Joey Diehl completed sage grouse winter habitat mapping projects for the BLM Billings Field Office and the Custer National Forest. They are also mapping sagebrush in the Powder River Basin and the Thunder Basin National Grasslands.

Decision Support Modeling

Our GIS Analyst/Ecologists at the Spatial Analysis Lab continue to work on Ecological Modeling for Decision Support (EMDS) for the USFS Northern Region. This involves developing and implementing habitat models for wildlife and building recreation data for the west side of Region 1. Ute Langner and Melissa Hart worked with Mark Jensen and Keith Reynolds of the Forest Service to create a poster on this work: "Using a Knowledge Base to Evaluate Aquatic System Integrity on National Forest Lands." It won the first place award for Professional Research at the Intermountain GIS conference in March.

Zoology Program Update – Bryce Maxell

Core Data Acquisition, Management & Delivery

Since the fall of 2007 we have added nearly 3,000 non-bird observations to our Point Observation Database (POD), bringing this database to about 100,200 observation records. During this same time period we've added nearly 11,600 bird observations to the Montana Bird Distribution (MBD) Database bringing its total to about 442,900 records. Major data acquisitions have included the FWP grizzly bear mortality database, a number of grassland bird point-count data sets, and a wide variety of animal observations from southeast Montana that Don Sasse (Wildlife Biologist on the Ashland District of Custer NF) pulled together from USFS, BLM, and FWP.

Since last fall, we've also reviewed about 24,000 animal observations to ensure that: (1) the observation is credible and consistent with the known spatial and temporal distribution and habitat use of the species; (2) the record is accurately mapped; (3) a locational uncertainty is assigned; (4) the record

represents an observation worthy of consideration for decision-making (i.e., associated with reproduction for the species). Thorough review of these records enabled us to complete development of Species Occurrences (SO: areas documented as supporting breeding activity) for all 196 of Montana's Animal Species of Concern, creating a total of 20,674 SO's. This was a critical objective, because SO's are widely used for environmental reviews and planning across Montana. With up-to-date SO's in place now for all Species of Concern, and new data processing methodologies in place, future updating will be more efficient and staff will have more valuable core time to spend on other priorities.

Our TRACKER website http://nhp.nris.state.mt.us/Tracker/NHTMap.aspx has received 2,401 hours (100+ days) of use by agency personnel and the general public since last fall. Agencies with the greatest use since the fall of 2007 (and total since June of 2007) include: USFS = 171 hours (total use now at 229 hours); FWP = 26 hours (total use now at 48 hours); BLM = 12 hours (total use now at 24 hours); DNRC = 14 hours; NRCS = 11 hours; USFWS = 4 hours. Use statistics also show that we need to do more marketing and training to other state and federal resource managers who could use the website.

Map products for Montana animals are a key output of the NHP Zoology program. We've made great progress since last fall on variety of map products, as described in the table below.

Map Product	Delivery Status
Range Maps	Currently available on TRACKER website and Animal Field Guide for all vertebrates (except accidental birds) and some invertebrate groups (terrestrial mollusks, butterflies, and dragonflies).
Generalized Distribution (quarter-quarter lat/long cells)	Currently available on TRACKER website to view generalized distributions based on 543,000+ observations.
Point Observation Data	Currently available on TRACKER website for agency personnel to access 543,000+ point observations.
Structured Surveys	Most bird point-count surveys, all terrestrial mollusk surveys, and pygmy rabbit surveys are now available on the TRACKER website. Other structured surveys will be added as time allows in 2008.
Species Occurrence Data (for Environmental Reviews)	20,674 polygonal features for all animal Species of Concern currently available on TRACKER website and via mediated requests.
Predicted Distribution Models	Available for terrestrial mollusks on Animal Field Guide and for grassland birds in recent report. Plan to model predicted distributions of all animal species during fall and winter of 2008.
Species Lists (documented and predicted)	Lists of species documented within a variety of administrative boundaries (county, PLSS, 12-digit watershed) are now available on the TRACKER website. Predicted species lists will be made available after predicted distribution models are completed for all species.

Data Sharing and Coordination

We have continued working with MFWP to integrate data acquisition and management activities for Montanan animals, with the goal of ensuring coordination of efforts and efficient use of time and money. This effort culminated recently with signing of a 7-page MOU with 40 pages of supporting documents. It outlines respective roles for our two agencies in the acquisition, management, and dissemination of animal information. A letter outlining these roles, as well as data products and contacts for data requests in both agencies, is available on the MTNHP website and is being distributed with this report.

Species of Concern List Update

A complete review of the status of animal Species of Concern and Potential Species of Concern is scheduled to be conducted jointly with FWP during the spring and summer of 2009. The review will consist of interviews of species experts to document what is known about (1) population size, (2) area of occupancy, (3) short-term trend, (4) long-term trend, (5) severity, scope, and immediacy of threats, (6) intrinsic vulnerability, and (7) environmental specificity.

Predictive Distribution Modelling for Northwest REGAP

Heritage programs in Montana, Wyoming, Idaho, Oregon, and Washington are cooperating to construct seamless predictive distribution models for vertebrates across the Pacific Northwest. As part of this effort, the Montana Heritage Program has provided:

1) Over 6,700 literature citations about habitat use by 460+ vertebrate species in Montana – these citations will be posted in the Animal Field Guide;

2) A geodatabase of species ranges in Montana within which predicted distribution models should be applied – these range maps have been posted on TRACKER website and will also be made available on the Animal Field Guide;

3) Documentation of habitat use by 460 + vertebrate species that can be used to build deductive models. Deductive and inductive models will be built by MTNHP staff in 2008, and we will ask species experts to help review and improve these models during the winter of 2008-2009.

Partner-Sponsored Field Projects

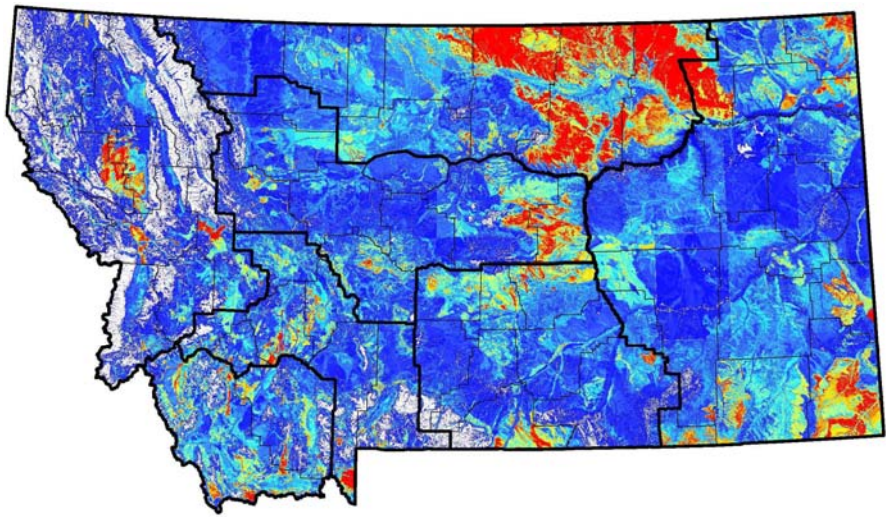
Terrestrial Mollusk Surveys for USFS

We just completed a report for our third year of surveys for land mollusks on R1 USFS lands in Montana; it's on our website at http://mtnhp.org/reports/Mollusc_Survey_and_Models_2007.pdf The report summarizes surveys conducted between 2005 and 2007, updates state ranks for some species based on our recent surveys, and includes detailed information on two species of mountainsnails (*Oreohelix spp*.) found in exposed rocky terrain above treeline in the Scapegoat Wilderness quite distant from known localities. It also includes predicted distribution models for 39 species, to guide future survey efforts.

Grassland Bird Surveys for BLM

Two reports were recently completed on grassland birds. One, a collaborative effort with MTNHP ecologists, used multi-scale analysis to link prairie breeding birds to site and landscape variables as part of a project investigating the impacts of sagebrush succession on animal communities. The report can be found on our website at: http://mtnhp.org/reports/Sage_Succ_Birds.pdf

A second study was completed for the BLM's Resource Management Plan on the Malta Field Office. The report, which is posted at http://mtnhp.org/reports/MaltaFO_2007.pdf, summarizes seven years of bird point-counts in north Valley County, as well as 2007 point-count surveys in Blaine and Phillips Counties. It also includes predicted distribution models for 11 grassland bird Species of Concern. The image below shows a hot (more suitable habitat) to cold (less suitable habitat) composite image of the predicted distribution for those 11 grassland birds. It underscores the importance of Valley, Phillips, and Blaine Counties to the conservation of grassland bird species in Montana.



Bat Surveys for USFS

We've nearly completed a report from the third year of surveys for bats on R1 USFS lands in Montana. It will summarize the distribution of bat species in Montana and morphological measurements taken during the past several years, and will identify major areas of the state that still lack survey information, to guide survey efforts in 2008 and beyond.

Terrestrial Mollusk Surveys for USFS and Glacier National Park

During the 2008 field season we'll be using predicted distribution models to guide surveys for terrestrial mollusks, focusing on areas most likely to extend or fill large holes in the known ranges of species on USFS lands. We will also focus more effort on conducting surveys at higher elevations where there's a lack of survey information on terrestrial mollusks. Finally, we will be conducting the first baseline survey for terrestrial mollusks within the boundaries of Glacier National Park.

Amphibian and Reptile Surveys for BLM and FWP

During the 2008 field season amphibian and reptile surveys will be conducted on lands administered by the BLM in eastern Montana south of the Missouri River, with emphasis on southeast Montana in the area most likely to be developed for Coal-Bed-Methane.

We also recently produced a draft Conservation Plan for the amphibians and reptiles of Montana, which will be made available sometime in 2008. This report will remain a dynamic document, continually updated as future surveys are completed and as other research is made available in the scientific literature.

Idaho Giant Salamander Surveys for USFS and FWP

During the 2005 field season Jennifer Copenhaver on the Lolo National Forest took photos of the first documented occurrence of Idaho Giant Salamanders in Montana south of I-90 near Saltese. During the 2006 and 2007 field seasons NHP teamed up with the USFS and FWP to survey hundreds of streams between Lookout Pass and the region north of Lolo Pass. In 2006, hundreds of Idaho Giant Salamanders were found in 15 different streams south of Saltese and Haugan. However, their distribution appears to be limited to that region because surveys to the south in 2007 failed to detect additional streams with salamander populations. See the following link for related stories/video:
http://fwp.mt.gov/news/article_5035.aspx
http://www.opi.mt.gov/Streamer/FWP/OutdoorRpt/Salamander_REF.mov
Surveys will continue in 2008 to obtain complete survey coverage between Lookout and Lolo Pass.

Grassland Bird Surveys for BLM and The Nature Conservancy

Grassland bird monitoring will continue in Valley County and in Blaine County for the BLM during the 2008 field season. We will also be conducting bird point-count surveys for The Nature Conservancy on the Matador Ranch and in areas with high potential for wind power development in eastern Montana.

Diversity Monitoring with FWP

We are collaborating with FWP on a State Wildlife Grant project to create monitoring schemes for small mammals, bats, amphibians, reptiles, and birds in order to continually assess the status and distribution of all vertebrate species in Montana. During the winter of 2008 and 2009, sampling schemes and methodologies will be discussed with partners. It is hoped that funding can be leveraged from a variety of partners in order to monitor the status of our wildlife in as inexpensive and collaborative a manner as possible.